

SYSTEMS AND METHODS FOR CORRECTING FOR SPHERICAL ABERRATION IN A SCANNING IMAGING SYSTEM

Methods and apparatus for internally correcting spherical aberration in a scanning imaging system. An example scanning imaging system includes an objective that converges an optical beam received from an external source through a flat plate onto an object and a component that corrects the optical beam for spherical aberration that is produced by the flat plate. The component includes a plurality of lenses that perform cancellation of the spherical aberration produced by the flat plate. The plurality of lenses acts as an afocal element. In another aspect of the invention, the component transforms the received optical beam into an annulus by partially blocking the optical beam. The component that blocks the optical beam includes a holographic element or a catadioptric element.